

Two often-referenced manuals that provide methods for analysis of these parameters are EPA's Chemical Methods Manual and Standard Methods.

Each of these documents provides a synopsis of the analytical method for each parameter, information on interfering substances, and step-by-step instructions on how to carry out the analysis. Also included is information on the calculation of results, the precision and accuracy of the analytical method, and techniques for chemically stabilizing and preserving samples.

EPA has recently proposed procedures for the analysis of toxic organic chemicals. These procedures were developed specifically for compliance monitoring under the Clean Water Act and are detailed in "Guidelines Establishing Test Procedures for the Analysis of Pollutants; Proposed Regulations" (40 CFR 136). Some of these methods can also be found in the Supplement to the 1981 edition of Standard Methods. Both sources include quality control techniques, glassware requirements, and sample preservation procedures for toxic organic pollutants. New Castle County laboratories have copies of the publications mentioned above. These publications supply the information that a trained laboratory technician needs to perform nearly all analyses required for a pretreatment monitoring program.

The potential for errors occurring during analysis of wastewater samples, although not as great as the errors associated with poor sampling techniques, can have a great impact on the acceptability of monitoring information. Without the aid of independent checks and general quality control, the laboratory technician may report erroneous results without being aware that a problem exists. Analytical quality control assistance is available from EPA. Each year EPA sends spiked samples to the M-O-T laboratory for analyses.

When the results are sent to EPA, an evaluation report is sent back by EPA. Since this system was started in 1981, the county Laboratory's evaluation has been most satisfactory.

5.4 CHAIN-OF-CUSTODY PROCEDURES

Once the appropriate sample is obtained and stabilized, it is essential that sampling personnel properly document the methods used to collect the sample, as well as the chain of possession of the sample from collection to analysis. Chain-of-custody procedures are a critical aspect in monitoring IUs. Since it is impossible to predict which violations will require legal action, it should be assumed that all data generated from sampling will end up in court. If the case ultimately goes to trial, the integrity of the data must be proved. The sampling results will only be admissible in court if POTW personnel can prove that a sample has not been tampered with or mishandled.

Some of the items that need to be documented to adequately address chain-of-custody concerns are:

- Name of person collecting the sampling
- Date and time of sample collection
- Location of sample collection
- Type of sample collected, grab, composite etc.
- Names and signatures of any person handling the samples in the field and laboratory

New Castle County uses a chain-of-custody form which is attached as Table 18.

5.5 ADMINISTRATION

Good record keeping is an important part of laboratory administration. To ensure proper recording and handling of data, New Castle County laboratory maintains a chronological record of all samples received and analyzed.

TABLE 18
NEW CASTLE COUNTY LABORATORY
CHAIN OF CUSTODY

SAMPLES FROM _____

SAMPLES TAKEN BY (signature) _____

SAMPLE LOCATION	DATE	TIME	SAMPLE TYPE		I.D. OF CONTAINER
			COMP.	GRAB	

RELINQUISHED BY (sign)	RECEIVED BY (sign)	DATE	TIME

OBSERVATION/COMMENTS: _____

Monitoring results are recorded on standard forms and copies are distributed to the Sanitary Engineer and the IU. A blank copy of the analytical results reporting form is attached as Table 19.

*VARIANCE

6. PROGRAM ORGANIZATION AND FUNDING

The ability to develop and implement a successful pretreatment program depends on a number of factors. The importance of legal authority, sound technical information, and proper procedures have already been discussed. This chapter focuses on the resources and the organization to apply them efficiently and effectively. Section 403.8(f)(3) requires that the POTW have "sufficient" resources and qualified personnel to implement program authorities and procedures. To properly implement a pretreatment program, the POTW must have:

- A workable organization to integrate elements of the program
- A staff of appropriate size and training to carry out program requirements
- The necessary equipment and supplies to fulfill monitoring and other program needs
- Adequate funds to support the program.

The above elements are closely interrelated; all must be present to enable a program to be successful. Nominal resources are needed for a small program like this, but documentation must be provided for program approval.

6.1 COUNTY ORGANIZATION

Organization and staffing requirements will vary according to the complexity and comprehensiveness of your local program. Whether the staff is large or small, it should be organized in a way that facilitates the successful completion of program responsibilities. The adequacy of the program's organization and staffing is based not only on whether essential functions are covered, but also on whether the number and type of staff are appropriate to implement the requirements of the program.

The executive branch of New Castle County government is headed by the County Executive, the chief elected official.

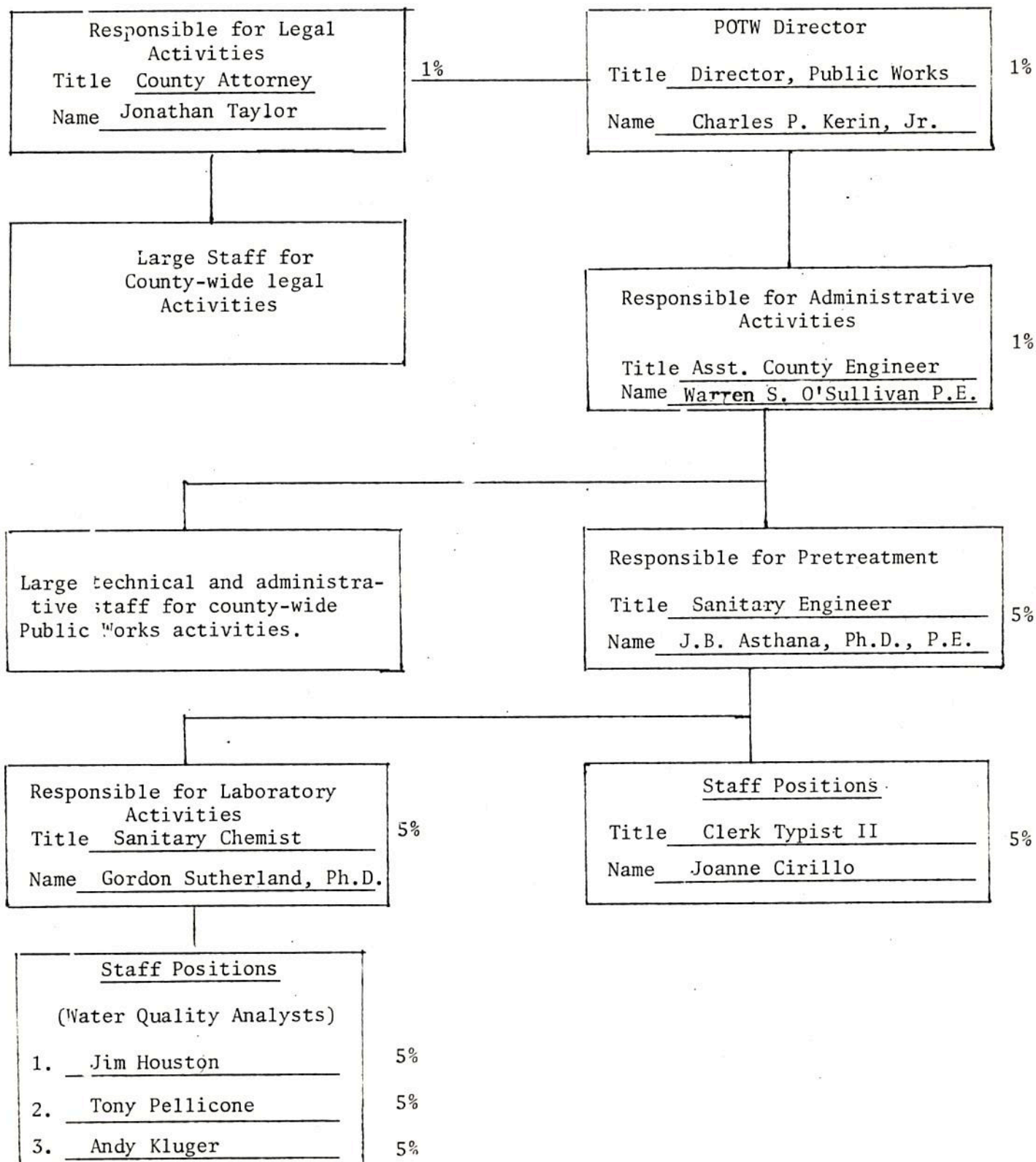
Ten departmental directors are appointed by the County Executive with the approval of the County Council. The executive office headed by a Chief Administrative Officer coordinates inter-departmental activities. The two departments which will be directly involved in Pretreatment Program development and implementation will be the Public Works Department headed by a Director and the Law Department headed by the County Attorney.

Changes in county ordinances will be drafted by the County Attorney with the technical assistance of Public Works staff. The Organization Plan for the M-O-T Pretreatment Program is illustrated on Figure 6. The Assistant County Engineer is responsible for program administration including inter-departmental and inter-jurisdictional activities. The Sanitary Engineer is in charge of the Treatment/Laboratory Analyses Section within the Public Works Department. This section will be responsible for Pretreatment activities including laboratory analysis, industrial monitoring and technical review.

6.2 STAFF RESPONSIBILITIES AND QUALIFICATIONS

The responsibilities of the Sanitary Engineer include management of all county wastewater treatment plants and implementation of Industrial wastewater discharge regulations. The engineer must be a Professional Engineer registered in the State of Delaware. The current engineer has a doctorate in Environmental Engineering and has specialized in Water Pollution Control. He has extensive experience in this field having worked for the State of Delaware on Construction Grants and NPDES programs and for New Castle County on Industrial Wastewater Discharge permit program.

FIGURE 6

M-O-T PRETREATMENT PROGRAMORGANIZATION PLAN

The Sanitary Engineer will be responsible for ensuring adequate industrial monitoring and technical review of data. With the assistance of a Clerk Typist, he will maintain all records and correspondence on the program.

Laboratory analyses will be performed by the county laboratory located at the M-O-T plant. The Sanitary Chemist is responsible for the county monitoring program. The current Sanitary Chemist has a doctorate in Chemistry and has extensive experience in wastewater analyses. The chemist is responsible for scheduling sampling activities, ensuring that chain of custody records are maintained and that adequate quality control assurance work is done.

All analytical work will be accomplished by one or more of the three water quality analysts. One of the Analysts has recently specialized in GC/MS analyses. Another Analyst has extensive experience in Atomic Absorption spectroscopy. All analysts are experienced in sampling techniques and wastewater analyses. They routinely use Standard Methods and EPA Methods for Chemical Analysis of Water and Wastes.

The Treatment/Lab section has been involved in monitoring industries in northern New Castle County since 1976. Addition of one industrial user in existing activities will be very easy and no additional resource needs are anticipated. Copies of job specifications for all staff positions involved in pretreatment are enclosed in Appendix M. These requirements show that adequate and qualified personnel will be available for the small M-O-T program.

6.3 SUPPORT SERVICES

In addition to the Treatment/Lab section, the Department of Public

Works has a large sewer maintenance section. Sewer Maintenance Technicians routinely inspect sewer lines and inform the Sanitary Engineer of unusual wastewater characteristics attributable to industrial discharges, so that investigative action can be taken.

The M-O-T plant is run by qualified and experienced operators. State of Delaware regulations as well as county job specifications require these operators to be licensed Class III operators. The operators have an inplant monitoring program designed to detect unusual conditions in treatment processes.

6.4 FUNDING

The budgets for Treatment/Lab Section includes operation and maintenance costs for all New Castle County plants; industrial sampling and analyses costs; and payment of treatment costs to the City of Wilmington. The FY 1984 budget was about \$10 million and included the cost of developing pretreatment programs for the M-O-T service area as well as the larger Wilmington service area. Pages 6-6 and 6-7 give the narrative and line item summaries of the FY 1984 budget.

The projected annual cost of implementing the M-O-T Pretreatment program during FY 1985 are summarized on Figure 6-A, page 6-8.

DEPARTMENT
Public Works

BUDGET UNIT
Treatment/Lab Analysis

ITEM 1 DEPARTMENTAL RANK 28 OF 33

PRIORITY 2

REDUCE

This unit handles the responsibilities of New Castle County regarding Water Pollution Control and related matters pursuant to the Federal Clean Water Act, Resource Conservation & Recovery Act, and the Delaware Environmental Protection Act.

The waste with NPDE will decrease level. The capability

Long Waterwater Treatment Plants (Delaware City, Port Penn, Odessa, Townsend) are being operated in very satisfactory and consistent compliance with State Federal NPDES Permit requirements. General housekeeping and maintenance is also satisfactory. Interested visitors from technical groups and public are welcomed to see the plants in operation.

Land application of stabilized sludge will be done at the Lower County Regional Sludge Management Facility at M-0-T, Odessa, in compliance with permit requirements.

The Laboratory unit offers analytical support services to the treatment and sludge disposal operations. It also collects wastewater samples from all major industrial and contract users to establish quarterly data base for every bill of over \$7.5 million/year. A high standard of quality control is maintained in lab results.

During FY84 about 90% of lab work will be completed towards development of the mandatory Industrial Pretreatment Program. It involves comprehensive toxic pollutant analyses and inventory.

The above activities account for about 10% of the budget for this unit. The balance provides for payment of treatment charges to the City of Wilmington.

APPROVED DEPARTMENTAL RANK

OF

PRIORITY

BASE

General h
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sludge di

ADMINISTRATIVE
ACTION

SOURCE OF FUNDS

POSITIONS

TOTAL DOLLARS

OPERATING FUNDS

16

\$ 10,527,199

COMMITTEE

RECEIVED

DISCUSSION

Public Works

BUDGET UNIT

Treatment/Lab Analysis

	FY'82 EXPENDITURES	FY'83 APPROPRIATIONS AS OF 2/28/83	PRIOR YEAR ENCUMBRANCES	TOTAL FY'83 AUTHORIZATION AS OF 2/28/83
SALARIES: FULL-TIME	327,275	332,353		332,353
SALARIES: P-T/SEASONAL				
HOLIDAY PAY		12,474		12,474
SHIFT DIFFERENTIAL		450		450
OVERTIME		34,368		34,368
SALARIES & WAGES: TOTAL	327,275	379,645		379,645
RETRIBUTES: FULL-TIME	92,103	108,199		108,199
RETRIBUTES: P-T/SEASONAL				
RETRIBUTES: TOTAL	92,103	108,199		108,199
TRAVEL & CIVIC AFFAIRS	1,708	115		115
COMMUNICATIONS & UTILITIES	6,516,427	6,896,039		6,896,039
MATERIALS & SUPPLIES	36,652	47,225	10,181	57,406
OUTREACH SERVICES	64,173	119,370	2,722	122,092
EQUIPMENT	30,414	8,500	7,023	15,523
OTHER & THIRD CHARGES		10,624		10,624
DEBT SERVICE				
DEPRECIATION				
OTHER DEBIT		51,943		51,943
EXPENSES: CREDITS	()	()	()	()
TOTALS	7,068,752	7,621,660	19,926	7,641,586

FIGURE 6A

M-O-T PRETREATMENT PROGRAM IMPLEMENTATION
PROJECTED ANNUAL OPERATING COSTS
FY 1985

I.	Direct Labor:	<u>Labor hours</u>	<u>Average</u>	<u>Annual</u>
			<u>Hourly Rate</u>	<u>Program Cost</u>
	Management	35	23.60	\$ 826
	Legal	20	20.00	\$ 400
	Engineering	90	19.50	\$1755
	Laboratory	360	13.25	\$4770
	Field inspection/sampling		-	\$ -
	Clerical	40	8.50	\$ 340
			Subtotal	<u>\$8091</u>
II.	Other Direct Costs		<u>Amount</u>	
	Vehicle operation		1,100	
	Laboratory equipment/supplies		650	
	Sampling and laboratory equipment operating & maintenance		900	
	Miscellaneous			
	- commercial laboratory		-	
	- contractor services			
	- debt service repayment			
			Subtotal	<u>\$2650</u>
III.	Indirect Costs		<u>@ 26%</u>	<u>\$2792</u>
	(May include overhead and general and administrative expenses)			

TOTAL ANNUAL OPERATING EXPENDITURES \$ 13,533

7. PROGRAM IMPLEMENTATION

Section 403.8(f)(2) of the General Pretreatment Regulations describes the procedures that are needed for an on-going and effective pretreatment program. Specifically, the POTW must have procedures to:

- Identify and locate all possible IUs that might be subject to the pretreatment program
- Obtain information describing the character and volume of wastes discharged by IUs
- Notify industrial dischargers of any applicable pretreatment standards or other applicable State or Federal standards or requirements
- Review self-monitoring reports and other notices submitted by IUs
- Randomly sample and analyze the effluent from IUs
- Investigate instances of noncompliance with pretreatment standards and requirements
- Comply with public participation requirements.

The procedures adopted by the POTW should be well thought out and easy to understand. They should be clear enough to be followed easily by all IUs, the public, and POTW staff members. Finally, the procedures should be flexible enough to allow reaction to day-to-day operating situations.

The first two procedures listed above are discussed in detail in Chapter 2, Industrial Waste Survey, and the next two procedures in Chapter 6, Program Organization. Sampling and analysis are discussed in Chapter 5, Monitoring Programs. Other procedures will be discussed in this chapter.

7.1 PROGRAM UPDATING

To adequately implement a pretreatment program, we must update information on a regular basis.

Up-to-date information is essential not only for determining the nature and quantity of the waste entering the system, but also for scheduling pretreatment activities and allocating resources to meet changing program needs. The POTW needs to develop procedures for identifying and gathering information on new industries moving into its service area and for updating its existing user information base. For the M-O-T Program this is a simple matter as procedures exist whereby all new industries in the service area must obtain wastewater discharge permits.

The permit also requires notification of changes in industrial processes, wastewater discharges, or industry ownership. Blank copies of a wastewater discharge permit application form and a permit form currently used by the County are enclosed in Appendix N. Similar forms will be developed and issued by the Town of Middletown.

The POTW is responsible for being up-to-date on all Federal pretreatment standards and applicable requirements under the Clean Water Act and Resource Conservation and Recovery Act. Such standards and requirements include:

- Federal categorical standards
- State standards
- Local standards and limitations
- Other pertinent requirements (e.g., user charges).

The POTW is also responsible for notifying any IU that may be affected by existing or newly promulgated standards and requirements. Procedures are available to obtain current information regarding the promulgation of national categorical standards and the status of applicable standards and regulations.

The Sanitary Engineer is assigned to review the Federal Register notices. He is on the EPA and DNREC mailing lists for matters dealing with Pretreatment. EPA Region III started a bi-monthly PRETREATMENT UPDATE newsletter in October 1983 which will greatly help in information updating.

7.2 NON COMPLIANCE INVESTIGATION

Self-monitoring reports and laboratory analyses form the basis of the POTW's compliance program by providing information on an industry's effluent and its compliance with pretreatment standards, limitations, and other requirements. The POTW needs to develop effective procedures for receiving, analyzing, and storing self-monitoring reports, compliance schedule reports, and other reports/notices submitted by IUs. This is especially important when an industry is subject to reporting requirements imposed by national categorical standards.

A process flow diagram of a typical review process is shown in Figure 7. It indicates how both self-monitoring reports and compliance schedule reports received from IUs should be entered into a master log, then compared with the user's limits or schedule, and finally referred for noncompliance investigation when necessary. If the IUs have met their effluent limits and compliance schedules, their reports should be placed in the POTW files for future reference.

With only one IU in the M-O-T Program it is not necessary to have an elaborate system of follow-up when non-compliance is detected. It will be the responsibility of the county's Sanitary Engineer to inform the Town of Middletown through the Assistant County Engineer of the problem and to suggest follow-up action in accordance with the ordinance.

The M-O-T service area covers only two political jurisdictions: New Castle County, The POTW owner, and the town of Middletown. The agreement between the County and the town of Middletown (new paragraph 14, Appendix I) "grants to the county the right to sample wastewater flows from industries located within the town's boundaries upon prior notification to the town." In addition, the new paragraph 6 documents the commitment of the town to enforce "wastewater discharge regulation of the county and the Pretreatment Regulations as presently issued, or as amended, to the Clean Water Act."

New Castle County's Sanitary Engineer is responsible for Pretreatment Program implementation. He will meet with the Mayor and Council of Middletown on a scheduled (once per quarter) basis to review the monitoring data from the County's sampling as well as any self-monitoring data. If any enforcement action is called for, the town of Middletown will be required to do so under the terms of the agreement. If the town fails to enforce compliance, the county can take legal action against the town as that will be a breach of the sewer agreement.

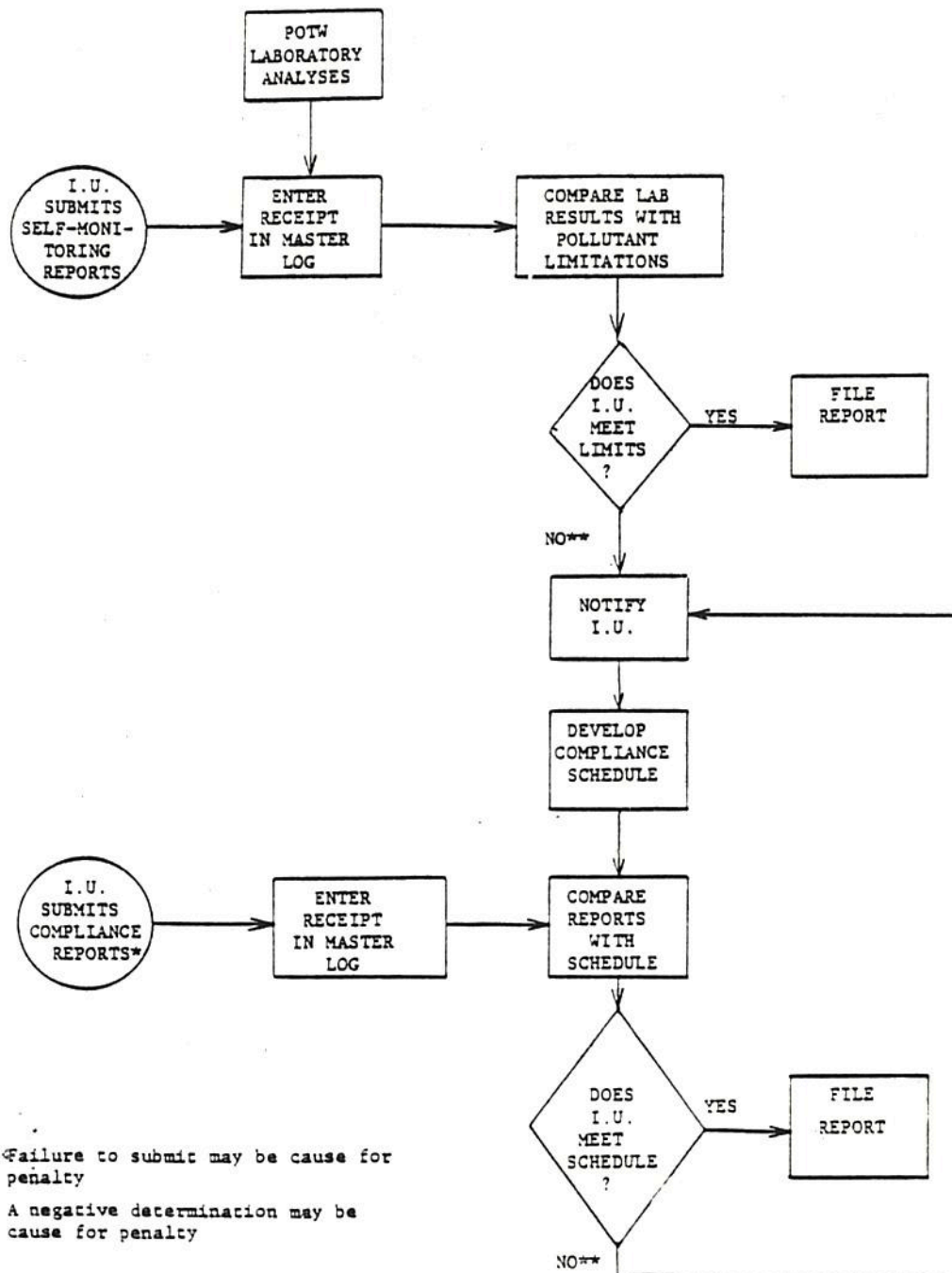


FIGURE 7
REVIEW PROCESS FOR INDUSTRIAL SELF-MONITORING REPORTS

7.3 EMERGENCY RESPONSE PROGRAM

As mentioned earlier there have been instances when the old Middletown S.T.P. was severely upset due to very high or very low pH discharges attributed to the IU. Since the startup of the M-O-T plant, the IU appears to have this problem under control. However the county has installed a pH alarm system at the Silverside Pumping System which is located midway between Middletown and Odessa on the interceptor.

The pH alarm system will be activated when the pH of the wastewater deviates outside the range of 5.5 to 9.5. A visual-cum-audible alarm is sounded at the County dispatch office which is manned at all times. The dispatcher has written instructions to call the treatment plant operator and communicate the problem.

The operators have written instructions on how to respond in the event of a pH emergency and a copy of these instructions is posted on the bulletin board. There is a spare primary clarifier which can store over 3 hours of the normal flow. The operator will check the influent pH and if it is outside the range of 5.5 to 9.5, will activate the specified valves to divert the flow into the spare clarifier. The time of travel for the wastewater from the Silverside Pumping Station to the M-O-T plant is about 90 minutes. This is ample time for the operator to reach the plant before the spill does.

Meanwhile the dispatchers will also inform the Engineer of the problem. Key county personnel are equipped with radio beepers and can be contacted any time and anywhere in the county. The Engineer will contact the IU to prevent continuance of the problem and will arrange for neutralization of the wastewater.

7.4 PUBLIC PARTICIPATION

Public participation is essential in maintaining the credibility of the pretreatment program, in working effectively with industries, and in educating the entire community on the objectives and benefits of the program.

The POTW is required by Federal regulation to keep the public informed of all cases of significant violation. To accomplish this, the POTW must publish, at least annually in the area's largest daily newspaper, the names of IUs significantly violating pretreatment standards during the previous 12 months. A significant violation is one that:

- Results in the exercise of emergency authority
- Remains uncorrected 45 days after notice of noncompliance is given
- Involves failure to accurately report.

A POTW must also give public notice of the development and revision of specific local limits through such means as a newspaper notice or letters sent to interested parties. The POTW must also provide opportunity for public comments. This can be most effectively done when the county and Town Ordinances are amended to comply with pretreatment requirements in open council meetings and the agenda is published in newspapers.

APPENDICES

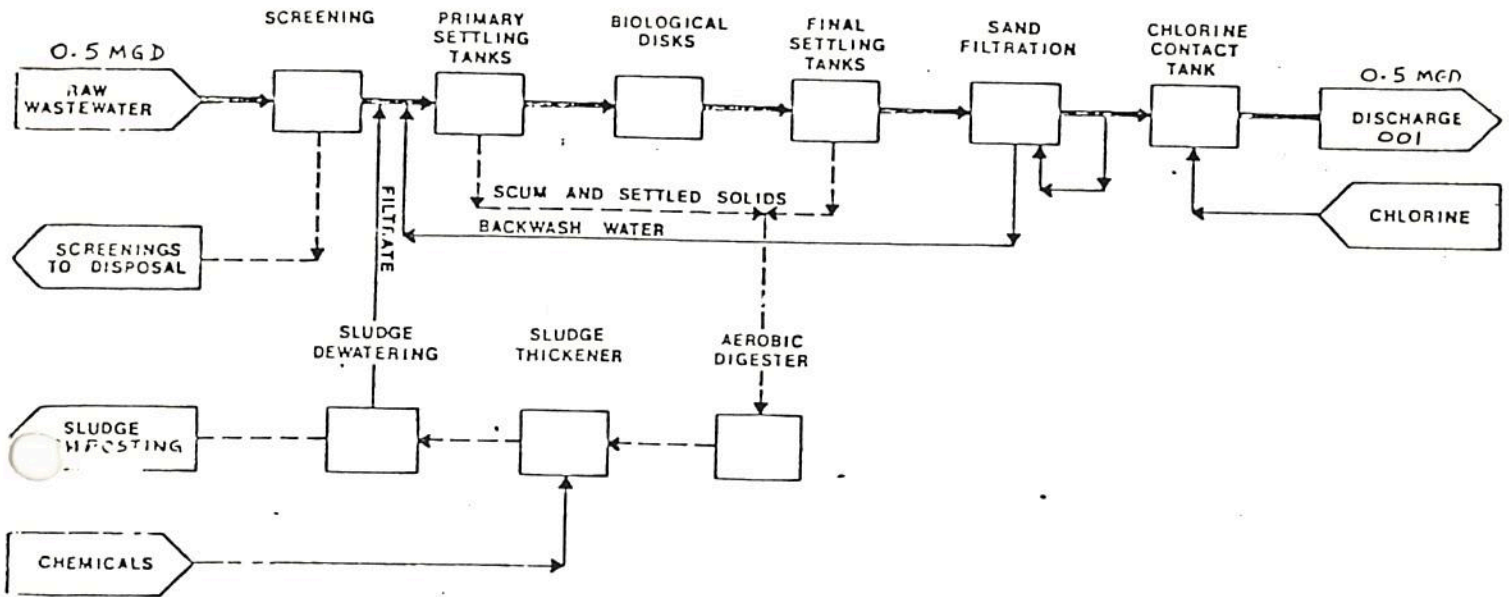
- A. NPDES Permit No. DE0050547
- B. Minutes of Pretreatment Committee Meetings
- C. Data on Middletown Industries
- D. E.P.A. Model Ordinance
- E. New Castle County Ordinance 75-238
- F. Pretreatment Statement
- G. Middletown Ordinance
- H. Pretreatment Program Endorsement
- I. Inter-jurisdictional Agreements
- J. Priority Pollutant Data
- K. Considerations for Applying Sewage Sludge
on Agricultural Land
- L. State Regulations Governing the Control of Water Pollution
- M. Staff Job Specifications
- N. Wastewater Discharge Permit and Applications Forms

APPENDIX A

NPDES PERMIT No. DE0050547

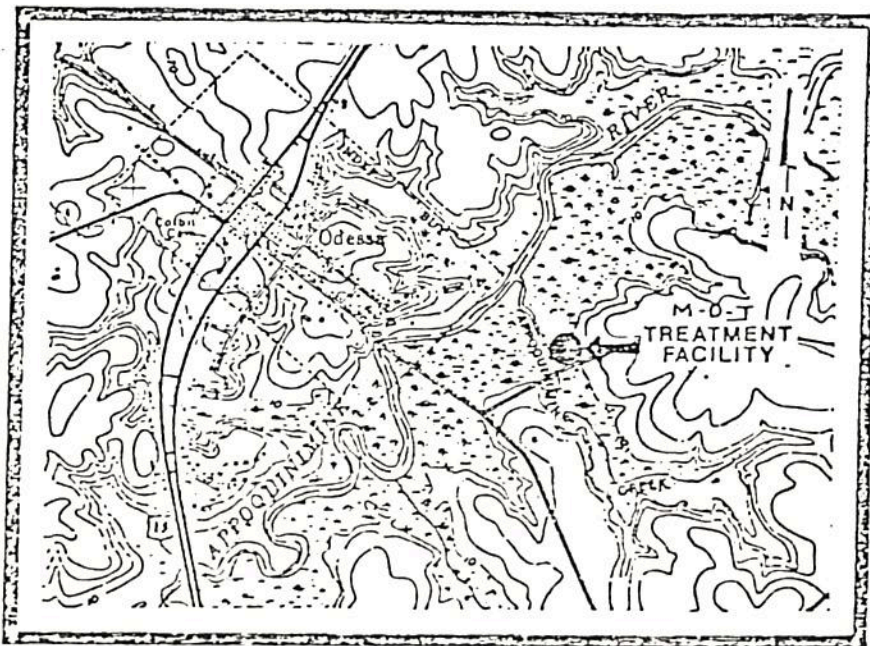
A. General Description of Discharges and Facilities

001 - Discharge from wastewater treatment plant.



LEGEND

- MAIN FLOW
- - - SECONDARY FLOW
- - - SLUDGE FLOW



Base Map: U.S. Geological Survey
Quadrangle

Scale 1:24,000
1" = 2,000'

Amended on July 27, 1982
Pages 3 & 4 - Sulfate mon. bring
requirements removed.

State Perm Number WPCC 3185A/75
NPDES Perm Number DE 0050547
Effective Date December 1, 1981
Expiration Date November 30, 1986

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
AND THE LAWS OF THE
STATE OF DELAWARE

In compliance with the provisions of the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 (33 U.S.C. 1251 et seq.) (hereinafter referred to as "the Act"), and pursuant to the provisions of 7 Del. C., §6003

Department of Public Works
New Castle County, Delaware

is authorized to discharge from the facility
(Point Sources 001) located at

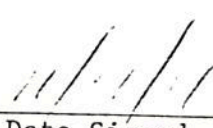
County Road #424 Near Odessa, Delaware
Appoquinimink Hundred, New Castle County and named Middletown-Odessa-Townsend Regional Wastewater Treatment Plant

to receiving waters named

Appoquinimink Creek - a tidal tributary to Zone 5 of the Delaware River.

The effluent limitations, monitoring requirements and other permit conditions are set forth in Part I, II and III hereof.

Robert J. Touhey, P.E., Manager
Division of Environmental Control
Department of Natural Resources
and Environmental Control


Date Signed

Revised July 27, 1982 for removing
sulfate monitoring requirements

Part I
State Permit Number WPCC 3185A/75
NPDES Permit Number DE 0050547
Page 3 of 18 Pages

B. EFFLUENT LIMITATIONS - Final

During the period beginning date of issue and lasting through permit expiration the permittee is authorized to discharge from point source(s) 001(a) the quantity and quality of effluent specified below:

The average quantity of effluent discharged from the wastewater treatment facility shall not exceed 0.5 million gallons per day (mgd) or 1893 cubic meters per day.

Parameter	Daily Average			Daily Maximum		Maximum Instantaneous Concentration
	lbs/day	kg/day	Concentration	lbs/day	kg/day	
BOD ₅	63	29	15 mg/l	96	44	23 mg/l
TSS	63	29	15 mg/l	96	44	23 mg/l
Lead	0.6	0.3	0.15 mg/l	1.0	0.5	0.23 mg/l
Fecal Coliform	-	-	200 colonies/100 ml			
Total Coliform						1,000 colonies/100 ml

The total chlorine residual shall not be less than 1 mg/l nor greater than 4 mg/l at all time.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units. The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.
(a) discharge from wastewater treatment plant.

C.1 MONITORING REQUIREMENTS - effluent - Final

During the period beginning date of issue and lasting through permit expiration
the permittee is authorized to discharge from outfall(s) serial number(s) 001(a)

Such discharge(s) shall be monitored by the permittee as specified below:

<u>Effluent Parameter</u>	<u>Measurement Frequency</u>	<u>Monitoring Requirement</u>	<u>Sample Type</u>
BOD ₅	Once every week		24 hour composite
TSS	Once every week		24 hour composite
pH	Once every week		Grab
Fecal Coliform	Once every week		Grab
Total Coliform	Once every week		Grab
Total Chlorine Residual	Once every day (Monday through Friday)		Grab
Flow	Continuous Recording & Totalizing		Grab
Temperature	Once every day (Monday through Friday)		Immersion Stabilization
Dissolved Oxygen	Once every day (Monday through Friday)		Grab
Lead	Once every week		24 hour composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: at discharge from treatment plant after chlorination.
(a) discharge from treatment plant.

D. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or non-compliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

E. Monitoring and Reporting

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Reporting

Monitoring results obtained during the previous one (1) month shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1), postmarked no later than the 28th day of the month following the completed reporting period. The first report is due on January 28, 1982. Signed copies of these, and all other reports required herein, shall be submitted to the State at the following address:

DELAWARE DEPT. OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL, DIVISION OF ENVIRONMENTAL CONTROL, TATNALL BUILDING, P. O. BOX 1401, DOVER, DELAWARE 19901 TELEPHONE: 302/736-4761

3. Definitions

- a. The daily average discharge - The total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days during the calendar month when the measurements were made.
- b. The daily maximum discharge - The total discharge by weight during any calendar day.
- c. Maximum instantaneous concentration - The concentration of a pollutant in terms of milligrams per liter which represents the value obtained from a grab sample of an effluent. The maximum instantaneous concentration shall be based on a review of the degree of fluctuation experienced in comparable systems. For purposes of compliance, the maximum instantaneous concentration shall be based on the actual analysis of the grab sample.
- d. Bypass - The intentional diversion of wastes from any portion of a treatment facility.
- e. Upset - An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facility, inadequate treatment facilities, lack of preventive maintenance or careless or improper operation.
- f. Composite sample - A combination of individual samples obtained at intervals over a time period. Either the volume of each individual sample is proportional to discharge flow rates or the sampling interval (for constant volume samples) is proportional to the flow rates over the time period used to produce the composite. For a continuous discharge, a minimum of 24 individual grab samples shall be collected and combined to constitute a 24 hour composite sample. For intermittent discharges of 4-8 hours duration, a minimum of 12 grab samples shall be collected and combined to constitute the composite sample for the discharge. For intermittent discharges of less than 4 hours, a minimum of individual grab samples shall be collected and combined to constitute the composite sample equal to the duration of the discharge in hours times 3 but not less than 3 samples.
- g. Grab sample - An individual sample collected in less than 15 minutes.

- h. I/S (immersion stabilization) - A calibrated device is immersed in the effluent stream until the reading is stabilized.
- i. The monthly average temperature - The arithmetic mean of temperature measurements made on an hourly basis, or the mean value plot of the record of a continuous automated temperature recording instrument, either during a calendar month, or during the operating month if flows are of shorter duration.
- j. The daily maximum temperature - The highest arithmetic mean of the temperature observed for any two (2) consecutive hours during a 24-hour day, or during the operating day if flows are of shorter duration.
- k. Measured flow - Any method of liquid volume measurement the accuracy of which has been previously demonstrated in engineering practice, or for which a relationship to absolute volume has been obtained.
- l. Estimate - To be based on a technical evaluation of the sources contributing to the discharge including, but not limited to, pump capabilities, water meters and batch discharge volumes.
- m. Non-contact cooling water - The water that is contained in a leak-free system, i.e., no contact with any gas, liquid, or solid other than the container for transport; the water shall have no net poundage addition of any pollutant over intake water levels.

4. Test Procedures

Test procedures for the analysis of pollutants shall conform to the applicable test procedures identified in 40 C.F.R., Part 136, unless otherwise specified in this permit.

5. Quality Assurance Practices

The permittee is required to show the validity of all data by requiring its laboratory to adhere to the following minimum quality assurance practices:

- a. Duplicate ⁽¹⁾ and spiked ⁽²⁾ samples must be run for each constituent in the permit on 5% of the samples, or at least on one sample per month, whichever is greater. If the analysis frequency is less than one sample per month, duplicate and/or spiked samples must be run for each analysis.
- b. For spiked samples, a known amount of each constituent is to be added to the discharge sample. The amount of constituent added should be approximately the same amount present in the unspiked sample, or must be approximately that stated as maximum or average in the discharge permit.

(1) Duplicate samples are not required for the following parameters: Color, Temperature, Turbidity.

(2) Spiked samples are not required for the following parameters: Acidity, Alkalinity, Bacteriological, Benzidine, Chlorine, Color, Dissolved Oxygen, Hardness, pH, Oil & Grease, Radiological, Residues, Temperature, Turbidity, BOD₅ and Total Suspended Solids. Procedures for spiking samples are available through the Regional Quality Assurance Coordinator.

- c. The data obtained in a and b shall be summarized in an annual report submitted at the end of the fourth quarter of reporting in terms of precision, percent recovery, and the number of duplicate and spiked samples run, date and laboratory log no. of samples run and name of analyst.
- d. Precision shall be calculated by the formula, standard deviation $s = (\sum d^2/k)^{1/2}$, where d is the difference between duplicate results, and k is the number of duplicate pairs used in the calculations.
- e. Percent recovery shall be reported on the basis of the formula $R = 100 (F-I)/A$, where F is the analytical result of the spiked sample, I is the result before spiking of the sample, and A is the amount of constituent added to the sample.
- f. The percent recovery, R , in e above shall be summarized yearly in terms of mean recovery and standard deviation from the mean. The formula, $s = (\sum (x-\bar{x})^2 / (n-1))^{1/2}$, where s is the standard deviation around the mean \bar{x} , \bar{x} is an individual recovery value, and n is the number of data points, shall be applied.
- g. The permittee or his contract laboratory is required to annually analyze an external quality control reference sample for each pollutant. These are available through the EPA regional quality assurance coordinator. Results shall be included in the annual report, c above.
- h. The permittee and/or his contract laboratory is required to maintain an up-to-date and continuous record of the method used, of any deviations from the method or options employed in the reference method, of reagent standardization, of equipment calibration and of the data obtained in a, b and f above.
- i. If a contract laboratory is utilized, the permittee shall report the name and address of the laboratory and the parameters analyzed together with the monitoring data required.

6. Records

- a. For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:
 - (1) The date, exact place and time of sampling or measurements;
 - (2) The person(s) who performed the sampling or measurements;

- (3) The dates analyses were performed;
- (4) The person(s) who performed each analysis;
- (5) The analytical techniques or methods used;
- (6) The results of each analyses; and
- (7) The quality assurance information as stated above.

- b. An operator log must be kept on site at all times. This log should include time spent at the treatment facility on any date, and the nature of operation and maintenance performed.

7. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report form (EPA No. 3320-1). Such increased frequency shall also be indicated.

8. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation and recording from continuous monitoring instrumentation shall be retained for three (3) years. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or regarding control standards applicable to the permittee, or as requested by the Department.

A. MANAGEMENT REQUIREMENTS

1. Change in Discharge

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit at a level in excess of that authorized shall constitute a violation of the permit. Any anticipated facility expansions, production increase, or process modifications which will result in new, different or increased discharge of pollutants must be reported by submission of a new NPDES application at least 180 days prior to commencement of the changed discharge. Any other activity which would constitute cause for modification or revocation and reissuance of this permit, as described in Part II, B-5 of this permit, shall be reported to the Department. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

2. Noncompliance Notification

a. If, for any reason, the permittee does not comply with or will be unable to comply with any daily maximum effluent limitations or maximum instantaneous concentration specified in this permit, the permittee shall provide the Department with the following information, in writing, within five (5) days of becoming aware of such conditions:

- (1) A description of the discharge and cause of noncompliance;
- (2) The period of noncompliance, including exact dates and times and the anticipated time when the discharge will return to compliance;
- (3) Steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

b. In the case of any upset or discharge subject to any toxic pollutant effluent standard under Section 307(a) of the Act, the Department shall be notified within 24 hours of the time the permittee becomes aware of the noncomplying discharge. Notification shall include information as described in paragraph 2(a) above. If such notification is made orally, a written submission must follow within five (5) days of the time the permittee becomes aware of the noncomplying discharge.

3. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all collection and treatment facilities and systems (and related appurtenances) installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes, but is not limited to, effective performance based on designed facility removals,

adequate funding, effective management, adequate operator staffing and training and adequate laboratory and process controls including appropriate quality assurance procedures.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact to the waters of the State or the United States resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

5. Bypassing

Any bypass of treatment facilities necessary to maintain compliance with the terms and conditions of this permit is prohibited unless:

- a. The bypass is unavoidable to prevent loss of life, personal injury or severe property damage; and
- b. There are no alternatives; and
- c. The Department is notified within 24 hours (if orally notified, then followed by a written submission, within five (5) days of the permittee's becoming aware of the bypass. Where the need for a bypass is known (or should have been known) in advance, this notification shall be submitted to the Department for approval at least ten (10) days before the date of bypass; and
- d. The bypass is allowed under conditions determined by the Department to be necessary to minimize adverse effect as provided under 7 Del. C., Chapter 60, §6011.

6. Conditions Necessary for Demonstration of an Upset

An upset shall constitute an affirmative defense to an action brought for noncompliance with technology-based effluent limitations only if the permittee demonstrates, through properly signed contemporaneous operating logs, or other relevant evidence, that:

- a. An upset occurred and that the permittee can identify the specific cause(s) of the upset; and
- b. The permitted facility was at the time being operated in a prudent and workman-like manner and in compliance with proper operation and maintenance procedures; and
- c. The permittee submitted a notification of noncompliance as required by Part II, A.2.b.
- d. The permittee has taken all remedial measures required to minimize adverse impact.

7. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of collection or treatment of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering surface waters or groundwaters.

8. Failure

The permittee, in order to maintain compliance with its permit, shall control production and all discharges upon reduction, loss or failure of the treatment facility until the facility is restored or an alternative method of treatment is provided.

9. Alternative Power Source

In order to insure compliance with the effluent limitations and all other terms and conditions of this permit, the Department may require that the permittee shall provide an alternative power sufficient to operate the wastewater collection and treatment facilities in accordance with the Schedule of Compliance contained in Part I of this permit.

10. RESPONSIBILITY

1. Right of Entry

The permittee shall allow the Secretary of the Department of Natural Resources and Environmental Control, the Regional Administrator, and their authorized representatives, jointly and severally, upon the presentation of credentials and such other documents as may be required by law:

- a. To enter upon the permittee's premises where a point source is located or where any records are required to be kept under the terms and conditions of this permit; and
- b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method required in this permit; to inspect any collection, treatment, pollution management, or discharge facilities required under this permit; and to sample any discharge of pollutants.

2. Transfer of Ownership and Control

In the event of any change in ownership or control of facilities from which the authorized discharge emanates, the permit may be transferred to another person if the permittee:

- a. Notifies the Department, in writing, of the proposed transfer; and

- b. A written agreement between the transferrer and the transferee, indicating the specific date of proposed transfer of permit coverage and acknowledging responsibilities of current and new permittees for compliance with and liability for the terms and conditions of this permit, is submitted to the Department; and
- c. The Department within thirty (30) days of receipt of the notification of the proposed transfer does not notify the current permittee and the new permittee of intent to modify, revoke and reissue, or terminate the permit and require that a new application be submitted.

3. Reapplication for a Permit

At least 180 days before the expiration date of this permit, the permittee shall submit a new application for a permit or notify the Department of the intent to cease discharging by the expiration date. In the event that a timely and sufficient reapplication has been submitted and the Department is unable, through no fault of the permittee, to issue a new permit before the expiration date of this permit, the terms and conditions of this permit are automatically continued and remain fully effective and enforceable.

4. Availability of Reports

Except for data determined to be confidential under Section 308 of the Act, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department of Natural Resources and Environmental Control. As required by the Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for under 7 Del. C., §6013.

5. Permit Modification, revocation and Reissuance and Termination

- a. After notice and opportunity for a hearing, this permit may be modified, terminated, or revoked and reissued in whole or in part during its term for cause including, but not limited to, the following:
 - (1) Violation of any terms or conditions of this permit;
 - (2) Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
 - (3) A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
 - (4) Information that the permitted discharge poses a threat to human health or welfare.

- b. In addition to the provisions of paragraph 5.a. above, this permit may be modified, revoked and reissued in whole or in part, but not terminated, after notice and opportunity for a hearing, for cause including, but not limited to, the following:
- (1) Material and substantial alterations or additions to the discharger's operation which were not covered in the effective permit provided that such alterations do not constitute total replacement of the process or production equipment causing the discharge which converts it into a new source;
 - (2) The existence of a factor or factors which, if properly and timely brought to the attention of the Department, would have justified the application of limitations or other requirements different from those required by applicable standards or limitations but only if the requestor shows that such factor or factors arose after the final permit was issued;
 - (3) Revision, withdrawal or modification of State water quality standards or Environmental Protection Agency promulgated effluent limitations guidelines, but only when:
 - (a) The permit term or condition requested to be modified or revoked was based on a promulgated effluent limitations guideline or an Environmental Protection Agency approved State water quality standards.
 - (b) The U.S. Environmental Protection Agency has:
 - (i) Revised, withdrawn or modified that portion of the effluent limitations guidelines on which the permit term or condition was based; or
 - (ii) Approved a State action with regard to a water quality standard on which the permit term or condition was based; and
 - (c) A request for modification or revocation and reissuance is filed within ninety (90) days after Federal Register notice of:
 - (i) Revision, withdrawal or modification of that portion of the effluent limitations guidelines; or
 - (ii) The U.S. Environmental Protection Agency approval of State action regarding a water quality standard;
 - (4) Judicial remand of Environmental Protection Agency promulgated effluent limitations guidelines, if the remand concerns that portion of the guidelines on which the permit term or condition was based and the request is filed within ninety (90) days of the judicial remand;

- (5) Any modification or revocation and reissuance of permits specifically authorized by the Act;
- (6) To comply with any applicable standard or limitation promulgated or approved under sections 301(b) (2) (C) and (D), 304 (b) (2) and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
 - (a) Contains different conditions or is otherwise more stringent than any effluent limitations in the permit; or
 - (b) Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

- (7) To contain a schedule of compliance leading to termination of the direct discharge by a date which is no later than the statutory deadline;
- (8) To modify a schedule of compliance in an issued permit for good and valid cause by a date which is no later than the statutory deadline.
- (9) To modify a schedule of compliance of a POTW which has received a grant, under section 202(a) (3) of the Act, to reflect the amount of time lost during construction of the innovative and alternative facilities by a date which is no later than the statutory deadline.

6. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under 7 Del. C., Chapter 60.

7. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation.

8. Discharge of Pollutants

Any person who causes or contributes to the discharge of a pollutant into waters of the State or the United States either in excess of any conditions specified in this permit or in absence of a specific permit condition shall report such an incident to the Department as required under 7 Del. C., §6028.

9. Property Rights

The issuance of this permit neither conveys any property rights in either real or personal property, or any exclusive privileges, nor authorizes any injury to private property or any invasion of personal rights, or any infringement of Federal, State or local laws or regulations.

10. Construction Authorizations

This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any navigable waters.

11. Severability

The provisions of this permit are severable. If any provision of this permit is held invalid, the remainder of this permit shall not be affected. If the application of any provision of this permit to any circumstance is held invalid, its application to other circumstances shall not be affected.

Special Conditions

- A. The permittee, a publicly owned treatment plant (hereinafter referred to as POTW), shall:
1. Provide adequate notice to the Department of the following:
 - a. Any new introduction of pollutants into that POTW from an indirect discharger which would be subject to sections 301 or 306 of the Act if it were directly discharging those pollutants; and
 - b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
 2. Identify, in terms of character and volume of pollutants, any significant indirect dischargers into the POTW subject to pretreatment standards under section 307(b) of the Act and 40 CFR, Part 403.
 3. Establish a local program, when required by the Department, in accordance with 40 CFR, Part 403 and applicable State laws and regulation to assure compliance with pretreatment standards to the extent applicable under section 307(b) of that Act. The local program shall be incorporated into the permit as described in 40 CFR, Part 403.
 4. Require any indirect discharger to such POTW to comply with the reporting requirements of sections 204(b), 307 and 308 of the Act, including any requirements established under 40 CFR, Part 403.
 5. This permit supersedes NPDES Permit DE 0050547, State Permit WPCC 3185/75 issued under date of July 19, 1976.
 6. The permittee shall develop a pretreatment program in accordance with the following schedule:

ACTIVITY
NUMBER

ACTIVITY

COMPLETION
DATE

A

Submit the results of an industrial user survey including identification of IU's and the character and volume of pollutants contributed to the POTW by the IU's.

January 1, 1982

<u>ACTIVITY NUMBER</u>	<u>ACTIVITY</u>	<u>COMPLETION DATE</u>
B	Submit and evaluate the legal authorities to be used by the permittee to apply and enforce the requirements of the Clean Water Act, including those requirements of the Pretreatment Regulation.	January 1, 1982
C	Submit a determination of technical information necessary to develop an industrial waste ordinance or other means of enforcing pretreatment standards.	January 1, 1982
D	Submit an evaluation of the financial programs and revenue sources which will be employed to implement the Pretreatment Program.	January 1, 1982
E	Submit design of a monitoring program which will implement the requirements of the Pretreatment Regulation.	June 1, 1982
F	Submit a list of monitoring equipment required by the POTW to implement the Pretreatment Program and a description of municipal facilities to be constructed for monitoring or analysis of industrial wastes.	June 1, 1982
G	Submit specific limitations for prohibited pollutants contributed to the POTW by IU's.	June 1, 1982
H	Submit a request for Pretreatment Program approval and removal credit approval, if desired.	January 1, 1983
I	Submit progress reports on January 5, 1982, June 4, 1982.	
7.	Sulfate monitoring data will be reviewed after receipt of 30 test values. A decision will then be made on limitations and the need for abatement action. If abatement action is required, the permittee will be requested to submit an abatement schedule.	
8.	The Delaware River Basin Commission (DRBC) allocation is 75 pounds per day of carbonaceous first stage oxygen demand (FSOD). The allocation is based on a flow of 0.5 MGD, a BOD ₅ effluent concentration of 15 mg/l and a ratio of carbonaceous oxygen demand to BOD ₅ of 1.2. The DRBC requires a 87.5% reduction of BOD for discharges to Zone 5.	